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MEMORANDUM

Date: December 5, 2000

To: Air Force Office of Scientific Research

From: Dr. Lex A. Akers, Co-Principal Investigator

Subject: AFOSR # F49620-98-1-0465

Final Technical Report

This report announces the completion of an advanced laboratory for image and video processing that will allow UTSA faculty and students to do complex analysis of images and videos. Such image analysis is of critical interest to both U.S. military and civilian institutions as the Air Force, Army, Navy, and the National Aeronautics and Space Administration (NASA).

The laboratory is complete. It consist of a powerful 4 processor SGI machine and a number of workstations connected by a high speed interconnect system.

The laboratory is being used for computer-intensive processing of immense volumes of image and video data, developing innovative algorithms, and evaluating sophisticated algorithms. It allows the UTSA team to develop processing architectures, and design parallel architectures, circuits, and devices. Further the lab allows us to conduct significant numerical studies that exploits innovative massively parallel image detection algorithms, wherein compute-intensive classification/recognition techniques will be improved by concurrently processing multiple images thereby increasing the detection rates and reducing false alarms.

We will bring students recruited from UTSA undergraduate and graduate minority programs into the laboratory, educate them on modern image processing technologies and provide them an opportunity to have access to large image and video databases. These recruited undergraduate students will have the opportunity to work on class projects involving engineering research or develop an imaging or video project for their senior design class. Therefore, their resulting projects serve an important academic role while providing an incentive for graduate studies. On the other hand, the recruited graduate students will benefit from this experience in several major ways. First, the equipment will be used to process data, which will complement the theoretical models developed by the students. Second, they will have the opportunity to participate in sponsored research as research associates. Finally, their research may become the theoretical foundation for a thesis.